## CLAIMS

1. A method, comprising transmitting a plurality of symbols each having at least one bit from a transmitter to at least one receiver using at least one channel and a predetermined transmission power,

- wherein the symbols are transmitted with a receiver-specific transmission energy which on the part of the receiver results in the reception of the symbol with a reception energy which corresponds to an upper limit value associated with the receiver or a lower value of an error recognition rate in comparison with the upper limit value, and

- wherein to achieve the receiver-specific transmission energy and at the same time a bit rate which is as high as possible in dependence on the currently prevailing transmission conditions between the transmitter and the receiver the symbol duration or the number per symbol of transmitted bits or the symbol duration and the number per symbol of transmitted bits are adapted.

2. A method of organizing a network, comprising transmitting a plurality of symbols each with at least one bit from a transmitter to at least one receiver using at least one channel and a predetermined transmission power,

- wherein the symbols are transmitted with a receiver-specific transmission energy which on the part of the receiver leads to the reception of the symbol with a reception energy which corresponds to an upper limit value associated with the receiver or a lower value of an error recognition rate,

- wherein in dependence on the currently prevailing transmission conditions between the transmitter and each individual receiver to achieve the receiver-specific transmission energy and at the same time a bit rate which is as high as possible the symbol duration, or the number per symbol of transmitted bits, or the symbol duration and the number per symbol of transmitted bits are adapted.

3. A method as set forth in claim 1 wherein exclusively the symbol duration is adapted.

4. A method as set forth in claim 1 comprising a step of selecting between

three available adaptation options, namely adaptation of the symbol duration, adaptation of the number per symbol of transmitted bits and adaptation both of the symbol duration and also the number per symbol of transmitted bits.

5. A method as set forth in claim 1 wherein in channel-specific fashion on time average the predetermined transmission power and/or the radiated electrical field strength and/or the radiated magnetic field strength and/or the spectral power density in the context of admissible power radiation or a parameter correlated with one or more of said parameters assumes a limit value corresponding to the maximum possible transmission energy per unit of time in the context of admissible radiation.

6. A method as set forth in claim 1 wherein the predetermined transmission power is at a maximum on time average in the context of the technical design of the transmitter.

7. A method as set forth in claim 1 wherein the transmission power can be predetermined.

8. A method as set forth in claim 1 comprising an additional step of ascertaining a currently prevailing value in respect of the reception energy with a given transmission energy.

9. A method as set forth in claim 1 wherein an RSSI measurement (radio signal strength indicator) in respect of the received power is carried out on the part of the receiver and a signal dependent on the measurement result is transmitted to the transmitter.

10. A method as set forth in claim 1 comprising an alternative or additional step of ascertaining a currently prevailing value in respect of the error recognition rate.

11. A method as set forth in claim 10 wherein the error recognition rate is ascertained by determining the number of errors within a received data frame.

12. A method as set forth in claim 10 wherein the error recognition rate is ascertained by averaging the number of errors in a plurality of data frames.

13. A method as set forth in claim 12 wherein the error recognition rate is ascertained by means of the number of negative receipt signals from the receiver over a predetermined period of time.

14. A method as set forth in claim 1 wherein the error recognition rate is a bit error rate (BER), a block error rate (BLER) or a frame error rate (FER).

15. A method as set forth in claim 1 wherein adaptation of the symbol duration is effected in dependence on the currently prevailing value of the error recognition rate at the receiver end or a currently prevailing magnitude at the receiver end of the noise power density.

16. A method as set forth in claim 1 wherein the receiver communicates to the transmitter the currently prevailing error recognition rate or the currently prevailing magnitude of the noise power density.

17. A method as set forth in claim 1 wherein the transmitter estimates the currently prevailing error recognition rate at the receiver end or the currently prevailing magnitude of the noise power density.

18. A method as set forth in claim 1 wherein the symbol duration or the number of bits contained in a symbol or both is adjusted down dynamically in dependence on the currently prevailing transmission conditions between transmitter and receiver in an existing connection or an ongoing data traffic without the connection or the data traffic being interrupted.

19. A method as set forth in claim 1 wherein the change in the symbol duration takes place continuously in respect of time, alternatively quasi-continuously, alternatively at predetermined time intervals.

20. A method as set forth in claim 1 wherein the symbol duration is adapted in channel-specific fashion, that is to say individually on each channel used.

21. A method as set forth in claim 1 wherein the symbol duration is restricted towards short symbol duration values in channel-specific fashion by the bandwidth of the channel.

22. A method as set forth in claim 1 wherein the symbol duration is

determined from a continuous value spectrum.

23. A method as set forth in claim 1 wherein the symbol duration is determined from a discrete value spectrum, wherein the discrete value spectrum contains the integral multiples of a symbol duration which is the shortest possible in channel-specific relationship.

24. A method as set forth in claim 1 wherein the symbol duration $T_{symbol}$ is determined at the transmitter end in accordance with the formula:

$$T_{symbol} = \frac{E_{min} \cdot \left( r/r_0 \right)^{\alpha}}{P_{send}}$$

wherein $E_{min}$ is the reception energy corresponding to the upper limit value associated with the receiver in respect of the error recognition rate, $P_{send}$ is the maximum transmission power, r is the distance between transmitter and receiver, $r_0$ is a reference distance and $\alpha$ is a propagation coefficient.

25. A method as set forth in claim 1 wherein the selection of the number per symbol of transmitted bits is effected in dependence on the currently prevailing value of the error recognition rate at the receiver end or on a currently prevailing magnitude at the receiver end at the noise power density.

26. A method as set forth in claim 1 wherein the number per symbol of transmitted bits is adapted in channel-specific relationship.

27. A method as set forth in claim 1 wherein adaptation of the number per symbol of transmitted bits is effected when a symbol duration which is shortest in channel-specific relationship is already used.

28. A method as set forth in claim 1 wherein a type of symbol with the highest possible number of bits is selected for transmission, which at the receiver end does not cause the upper limit value of the error recognition rate to be exceeded.

29. A method as set forth in claim 1 wherein the symbols are transmitted divided up to a respective sequence of chips.

30. A method as set forth in claim 29 wherein the symbols are spread in

respect of frequency by being modulated with a noise or pseudo-noise sequence, the noise or pseudo-noise sequence being known to the receiver.

31. A method as set forth in claim 30 wherein the noise or pseudo-noise sequence is dynamically adapted to the selected symbol duration.

32. A method as set forth in claim 1 wherein the symbols are transmitted in such a way that the available channel bandwidth is fully used.

33. A method as set forth in claim 1 wherein the symbols are transmitted spread in respect of frequency.

34. A method as set forth in claim 1 wherein the symbols are transmitted in the form of a chirp signal.

35. A method as set forth in claim 34 wherein chirp signals from the transmitter, which are intended for a respective receiver, are superimposed in respect of time.

36. A method as set forth in claim 35 wherein the total of the transmission powers, radiated in a moment in time, of the mutually superimposed chirp signals is equal to the maximum admissible transmission power on the respective channel.

37. A method as set forth in claim 1 wherein the symbols are transmitted in the form of a CDMA sequence.

38. A method as set forth in claim 1 wherein the symbols are transmitted in the frame of a FDMA method.

39. A method as set forth in claim 38 wherein division into FDMA channels is effected dynamically in such a way that a lower bandwidth is allocated to receivers with good channel transmission conditions.

40. A method as set forth in claim 1 wherein a TDMA method is used on at least one channel.

41. A method as set forth in claim 1 wherein the transmitter is a mobile terminal of a user and prior to the transmission of the symbols to a base station

receives from the base station information about a frequency band to be used for the transmission.

42. A method as set forth in claim 1 wherein a base station operating as a receiver checks incoming signals from a mobile terminal operating as a transmitter with a plurality of modulation modes and uses a modulation mode recognized as correct for reception of the signals from the mobile terminal.

43. A method as set forth in claim 1 wherein a base station operating as a receiver receives incoming signals by means of a plurality of receivers, wherein a modulation mode is associated with each receiver and a mobile terminal operating as a transmitter uses one of the modulation modes available at the transmitter end for transmission of symbols to the base station.

44. A transmitter adapted for carrying out a method as set forth in claim 1.

45. A transmitter for carrying out a method as set forth in claim 1, and comprising

a transmitting unit which is adapted to produce signals representing logic symbols (hereinafter referred to as symbols) and emitting same, wherein a logic symbol represents either a bit or a plurality of bits, and

a control unit which is adapted on the basis of items of information present about currently prevailing transmission conditions between the transmitter and a receiver of the symbols to produce and deliver control signals which prescribe for the transmitting unit a receiver-specific transmission energy which corresponds to an upper limit value in respect of a error recognition rate associated with the receiver or a lower value of the error recognition rate than the upper limit value,

wherein the control unit is additionally adapted, for the purposes of achieving the receiver-specific transmission energy and at the same time a bit rate which is as high as possible in dependence on the currently prevailing transmission conditions between the transmitter and the receiver, to produce and deliver control signals which prescribe for the transmitting unit the use of symbols with a suitably adapted symbol duration, or with a suitably adapted number per symbol of transmitted bits, or with a suitably adapted symbol

duration and a suitably adapted number per symbol of transmitted bits.

46. A transmitter as set forth in claim 44 wherein the control unit is adapted solely in accordance with the alternative, for production of the receiver-specific transmission energy and at the same time a bit rate which is as high as possible in dependence on the currently prevailing transmission conditions between transmitter and receiver to produce and deliver control signals which prescribe for the transmitting unit the use of symbols with a suitably adapted symbol duration.

47. A transmitter as set forth in claim 44 wherein the control unit is adapted in dependence on the currently prevailing transmission conditions between transmitter and receiver to select one or more of a number of available adaptation options and to produce and deliver a control signal indicating the selection made, wherein the adaptation options include adaptation of the symbol duration, adaptation of the number per symbol of transmitted bits and adaptation both of the symbol duration and also the number per symbol of transmitted bits.

48. A transmitter as set forth in claim 44 wherein the control unit is adapted to control the transmitting unit in such a way that in channel-specific relationship on time average the transmission power and/or the radiated electrical field strength and/or the radiated magnetic field strength and/or the spectral power density in the context of admissible power radiation is equal to a predetermined maximum value or is a maximum within the limits of the technical design of the transmitter or a parameter correlated with one or more of said parameters assumes a limit value corresponding to the maximum possible transmission energy per unit of time in the context of admissible radiation.

49. A transmitter as set forth in claim 44 wherein the control unit is adapted to estimate the currently prevailing error recognition rate on the part of the receiver or the currently prevailing magnitude of the noise power density.

50. A transmitter as set forth in claim 44 wherein the control unit is adapted to re-determine the symbol duration or the number of bits contained in a symbol or both in dependence on currently prevailing transmission conditions between transmitter and receiver dynamically in an existing connection or an ongoing

data traffic and to prescribe same for the transmitting unit by means of suitable control signals and that the transmitting unit is adapted to effect the prescribed adaptations without an interruption in the connection or the data traffic.

51. A transmitter as set forth in claim 44 wherein the control unit is adapted to re-determine the symbol duration continuously in respect of time, alternatively quasi-continuously or alternatively at predetermined time intervals.

52. A transmitter as set forth in claim 44 wherein the control unit is adapted to determine the symbol duration in channel-specific fashion, that is to say individually on each channel used.

53. A transmitter as set forth in claim 44 wherein the control unit is adapted to determine the symbol duration $T_{symbol}$ in accordance with the formula:

$$T_{symbol} = \frac{E_{min} \cdot \left( r/r_0 \right)^{\alpha}}{P_{send}}$$

wherein $E_{min}$ is the reception energy corresponding to the upper limit value of the error recognition rate which is associated with the receiver, $P_{send}$ is the maximum transmission power, r is the distance between transmitter and receiver, $r_0$ is a reference distance and $\alpha$ is a propagation coefficient.

54. A transmitter as set forth in claim 44 wherein the control unit is adapted to effect the choice of the number per symbol of transmitted bits in dependence on the currently prevailing value of an error recognition rate at the receiver end or on a currently prevailing magnitude of the noise power density at the receiver end.

55. A transmitter as set forth in claim 44 wherein the control unit is adapted to adapt the number per symbol of transmitted bits in channel-specific relationship.

56. A transmitter as set forth in claim 44 wherein the control unit is adapted to effect adaptation of the number per symbol of transmitted bits when a symbol duration which is shortest in channel-specific relationship is already being used.

57. A transmitter as set forth in claim 44 wherein the control unit is adapted

to select that type of symbol with the highest possible number of bits for transmission, which at the receiver end does not allow the upper limit of the error recognition rate to be exceeded.

58. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to emit the symbols distributed to a respective sequence of chips.

59. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to emit the symbols spread in respect of frequency insofar as it modulates them with a noise or pseudo-noise sequence which is predetermined by the control unit, the noise or pseudo-noise sequence being known to the receiver.

60. A transmitter as set forth in claim 44 wherein the control unit is adapted to adapt the noise or pseudo-noise sequence to be used by the transmitting unit dynamically to the selected symbol duration.

61. A transmitter as set forth in claim 44 wherein the control unit is adapted to actuate the transmitting unit for emission of the symbols in such a way that the available channel bandwidth is fully used.

62. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to emit the symbols spread in respect of frequency.

63. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to emit the symbols in the form of a chirp signal.

64. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to superimpose in respect of time the chirp signals intended for a respective receiver.

65. A transmitter as set forth in claim 64 wherein the total of the transmission powers, radiated at a moment in time, of the mutually superimposed chirp signals is equal to the maximum admissible transmission power on the respective channel.

66. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to transmit the symbols in the form of a CDMA sequence or in the frame

of a FDMA method or in the frame of a TDMA method.

67. A transmitter as set forth in claim 44 wherein the control unit is adapted in dependence on the currently prevailing transmission conditions between transmitter and receiver to produce and deliver a control signal which prescribes for the transmitting unit the use of one of a plurality of available multiple access methods in the communication with said receiver.

68. A transmitter as set forth in claim 44 wherein the transmitting unit is connected to a data memory which contains transmission parameters or signal patterns of different symbol types.

69. A transmitter as set forth in claim 44 with a dispersive delay section for signal spreading.

70. A transmitter as set forth in claim 44 comprising a sequence generator connected to the transmitting unit and adapted to produce a m-sequence for signal spreading.

71. A transmitter as set forth in claim 44 wherein signals which can be emitted are stored in a memory or can be read out of a shift register structure.

72. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to produce any signal to be emitted by execution of one or more algorithms which are implemented in the form of a corresponding circuit or in the form of software and to produce the respective signal which is to be currently emitted in dependence on control signals from the control unit.

73. A transmitter as set forth in claim 44 wherein the transmitting unit has a signal sequencer and an IQ modulator unit connected on the output side thereof, and is adapted to pass a signal to be emitted, after the production thereof, to the signal sequencer and then to the IQ modulator unit and then to convert it directly into the carrier band.

74. A transmitter as set forth in claim 44 wherein the transmitting unit is adapted to produce signals to be transmitted internally digitally and wherein the transmitting unit has a digital-analog converter to which the internally produced digital signals are passed prior to radiation.

75. A transmitter as set forth in claim 44 with a programmable transmitter structure (software radio).

76. A transmitter as set forth in claim 75 wherein the transmitter structure is dynamically variable.

77. A transmitter as set forth in claim 44 comprising a channel estimation unit.

78. A transmitter-receiver arrangement comprising a transmitter device and a receiver device, wherein the transmitter device has the features of the transmitter of claim 44.

79. A transmitter-receiver arrangement as set forth in claim 78 which is in the form of a mobile terminal of a user and wherein the receiver device is adapted to receive from an associated base station information about a frequency band to be used for the transmission and to pass that information prior to transmission of symbols to the base station to the transmitter device.

80. A transmitter-receiver arrangement as set forth in claim 79 which is in the form of a base transceiver station of a mobile radio network.

81. A transmitter-receiver arrangement as set forth in claim 78 wherein the receiver device is adapted to effect an RSSI measurement (radio signal strength indicator) of a power received from a second transmitter-receiver arrangement by way of a communication channel and to communicate to the transmitter device a signal which is dependent on the measurement result, and wherein the transmitter device is adapted to transmit a signal representative of the measurement result to the second transmitter-receiver arrangement.

82. A transmitter-receiver arrangement as set forth in claim 81 wherein the control unit of the transmitter device produces its control signals in dependence on the result of an RSSI measurement obtained from the second transmitter-receiver arrangement.

83. A receiver for carrying out the method as set forth in claim 1.